ATTACHMENT 5 - WORK PLAN

This section describes the work that would be performed and is divided into the following sections

- Scope of Proposal
- Goals and Objectives
- Project Location
- Work Items
- Project Deliverables
- Permitting and Environmental Documentation
- Strategy for Evaluating Progress and Performance
- Property Access
- Information Dissemination

5.1 – Scope of Proposal

The scope of the proposal is to construct five monitoring wells, one nested (two wells perforated in different zones but installed in one borehole) monitoring well, and three single monitoring wells to develop a dedicated groundwater monitoring program. Groundwater level data will be collected using newly installed data loggers in the proposed wells, and data loggers installed in four existing wells. This goal will be achieved through a number of specific work tasks described in this work plan, including public outreach, monitoring well design, monitoring well construction, post construction activities and reporting.

5.2 – Goals and Objectives

The broad goals of the project are to install monitoring wells and gather geologic data to strengthen the District's groundwater monitoring capabilities. The project is expected to result in significant amounts of new knowledge and an achievable improvement in groundwater management in Tranquillity Irrigation District and Fresno Slough Water District.

Monitoring is considered critical to future management decisions, and the District's monitoring program is intended to:

1. Provide warning of potential future problems;
2. Use data gathered to generate information for water resources evaluations;
3. Develop meaningful long-term trends in groundwater characteristics; and
4. Provide data comparable from place to place in the District

The specific goals and objectives of the groundwater monitoring program are to gather public comment on the program and to plan, design and install five monitoring wells, evaluate the

findings from their installation and present the findings in a report, as well as install data loggers for long term groundwater level monitoring in these five locations in addition to four existing well locations. The wells will provide benefits to District-wide groundwater monitoring, and localized benefit to District's "Domestic Water System Groundwater Source of Supply Area." The general, long-term general goals for the monitoring wells include:

1. Establish a baseline for future monitoring
2. Fill gaps in District-wide monitoring network
3. Increase capability to measure water levels in multiple aquifers
4. Characterize geographic variability in water quality
5. Use monitoring data in part to compute groundwater stored and withdrawn
6. Provide data needed for graphical, semi-analytical or computer model analysis of groundwater conditions
7. Understand the groundwater gradient in the confined aquifer
8. Increase groundwater level data in an area lacking data in the statewide network

Goals specific to the Domestic Water System Groundwater Source of Supply Area include:

1. Develop long term groundwater level data above and below the confining layer (Corcoran clay)
2. Use monitoring data to assist in locating future recovery wells in the area.

5.3 – Project Location

The area of the proposed project encompasses the majority of the District, as well as the TID owned land in Fresno Slough Water District as shown on **Exhibit 4.1**. Wells are located throughout the District to be able to gather data District wide. However, the new monitoring wells will provide groundwater data primarily in the northerly and central part of TID, where the majority of the existing groundwater pumping occurs. The monitoring wells in the "Domestic Water System Groundwater Source of Supply Area" (see **Exhibit 4.1** & **Exhibit 4.3** for the location of said area) are to be placed central to this dedicated area.

5.4 – Work Items

The work plan for the project is described below. These work tasks are consistent with the schedule and budget.

Task 1 – Stakeholder Involvement

Subtask 1.1 – Public Outreach

Public outreach will include the following:

- Flyer. A flyer will be prepared announcing the grant award and what TID proposes to construct with the funds. The flyer will be placed on the TID office bulletin Board, TID website, and made available at the TID annual grower's meeting.
- Website. TID maintains a website to keep growers informed of current events and TID projects. In addition to the educational flyer, TID will post the draft and final project report on the website.
- Contact Neighboring Agencies. TID will directly contact neighboring agencies that may be interested in the project, including James Irrigation District and Fresno Slough Water District. These districts already collaborate with TID on groundwater projects and may be interested in the proposed improvements to the monitoring network.
- TID Office. Local growers and water users frequently visit the TID office. TID will keep a copy of the grant application, draft project report, and final project report for review by the public. TID staff will be available to discuss the project with interested stakeholders.

Subtask 1.2 - District Board of Directors Meetings

The TID Board of Directors meets monthly to discuss District issues. The meetings are open to the public, and the Board is comprised of local growers and represents the voice of the local farming community. It is anticipated that the Board will be given bi-monthly updates on the project. In addition, in-depth presentations on the project will be provided at two Board meetings. During these meetings, the engineering consultant will attend, handouts will be provided, and, if deemed necessary, PowerPoint presentations and other visuals will be used. The Board will be educated on the project and asked to provide input and comments.

Task 2 - Monitoring Well Design

Subtask 2.1 - Conceptual Design Memorandum

A conceptual design memorandum will be prepared based upon an understanding of the hydrogeologic setting and groundwater flow conditions. The conceptual design memorandum will document and expand upon the project details described in **Section 4.2 – Project Description**. The conceptual design memo will include: monitoring well locations, drilling methods, monitoring well depths, borehole diameters, screen lengths and intervals, gravel/sand pack intervals, and sealing materials and intervals. The memorandum will be given to the Board of Directors and an independent third-party expert (Kenneth D. Schmidt and Associates) for comments before proceeding with the final design.

Subtask 2.2 - Environmental Documents/Permitting

Based on the nature of the work, TID believes that the project is categorically exempt from CEQA. TID will file a Notice of Exemption with Fresno County based on a Class 6 'Information Collection' exemption (Section 15306) and Class 3 'Small New Facilities' exemption (Section

15303). The drilling contractor will be required to obtain well drilling permits and County right-of-way encroachment permits (see Subtask 3.1).

Subtask 2.3 - Monitoring Well Construction Drawings and Specifications

A licensed engineer will prepare well design drawings, specifications and technical documents. The wells will be designed in accordance with the California Water Well Standards (Bulletin 74-81). An engineer's cost estimate will be prepared for comparison to contractor bids.

Subtask 2.4 - Prepare Public Bid Documents/Assist with Bidding

A licensed engineer will prepare necessary bidding and legal documents to conduct a public bidding process. TID will provide public notice of the bidding in accordance with Government Code requirements and TID policies. The documents will be made available to the State for review as necessary. It is anticipated that all monitoring wells will be included in one bid. The wells will be drilled by qualified well drillers with experience in construction of monitoring and nested monitoring wells of the type and depth planned for the project.

Task 3 - Monitoring Well Construction

Subtask 3.1 - Well Construction

This task includes construction of five new monitoring wells in four locations, as shown on **Exhibit 4.1**. The wells will have the casing depths described in **Section 4.2**.

Construction review will be performed under the supervision of a licensed engineer. The District and the engineer will be responsible for insuring that the design intent is implemented during the construction phase and will inspect the site before, during, and after construction.

The monitoring wells will be drilled by a qualified driller with experience in construction of monitoring wells. The following qualifications will be required:

- Experience – The Contractor shall have at least 5 years experience in drilling nested wells to depths of at least 600 feet using the drilling, construction and development methods as specified.
- License – The well driller must possess a current C-57 Well Drillers License, valid in the State of California.

The drilling will be performed in Fresno County and the Contractor shall obtain well drilling permits from Fresno County (see **Exhibit 5.1** for a blank permit application), and shall submit well completion reports to the California Department of Water Resources. The contractor will be responsible for obtaining encroachment permits for all wells constructed on County Road

right-of-ways (for a recent approval for similar wells in neighboring James Irrigation District, see **Exhibit 5.2**). Based on the experience of Provost & Pritchard Engineering Group, Fresno County rarely declines permits to construct wells on county road right-of-ways, as long as all County guidelines are met. Additional details on property access are described herein, in Section 5.8.

Subtask 3.2 - Geologic and Geophysical Logging

During drilling, the borehole cuttings will be logged be a Professional Geologist and classified in accordance with the Unified Soil Classification System. Well log information will include stratigraphy, date of drilling, type of drill rig, type and diameter of drill bit, type of fluid additives, and depth of boring. After drilling the boring will be geophysically logged (e-logged) to aid in identifying the location of aquifer and aquitard materials Monitoring zones and appropriate well screen intervals will be identified during this process.

Subtask 3.3 - Surveying

After construction, each monitoring well will be surveyed by a licensed surveyor. Each individual casing will be surveyed and marked (generally on the north side of the casing) for reference for future water level measurements. The concrete well pad and surrounding ground surface will also be surveyed for elevation. Well elevations (absolute) will be measured within 0.1 feet. Each well will have a horizontal survey reported in latitude and longitude. By having elevations on each well and the measurement, water elevations can be computed and the groundwater gradient for the area estimated.

Subtask 3.4 - Prepare Record Drawings

The final well design and construction may differ slightly from the well specifications due to variations in site conditions and geology. As a result, final well construction information will be documented, including: well depth and diameter, casing diameters, screened intervals, gravel/sand pack intervals and type, sealing intervals and type, and conductor casings and surface completion details. The drawings will be signed by a professional engineer.

Subtask 3.5- Labor Compliance

The District proposes to use Richard Perez of the firm Labor Consultants of California (LCA) to prepare and enforce a Labor Compliance Plan that satisfies relevant provisions of the California Labor Code, as TID has contracted with LCA on other Proposition 84 funded projects. The Plans and specifications will be reviewed by Labor Consultants of California to insure compliance with labor rules and regulations. Furthermore, LCA will meet with the contractor prior to and during construction, interview contractor employees, review certified payroll records, and conduct other labor compliance required activities.

Task 4 - Post Construction Activities

Subtask 4.1 – Hydrogeologic and Stratigraphic Evaluation

A detailed hydrogeologic and stratigraphic evaluation will be performed by a professional geologist and documented in a technical memorandum. The evaluation will consider the geologic logs, e-logs, water quality results, and other information obtained during well construction. The geologic information displayed will be correlated with regional studies, and compared to data from other wells in the area. The purpose of the evaluation will be to: 1) characterize the geology and hydrogeology; 2) provide insight into the impact of groundwater pumping on groundwater levels; 3) identify impacts of stratigraphy on horizontal and vertical water movement; and 4) provide data for future estimates of aquifer parameters.

Subtask 4.2 - Monitoring Well Sampling and Analytical Testing

Each casing within the monitoring well will be sampled and analytically tested for an irrigation suitability analysis, which includes the primary constituents of interest in the area (see list of constituents on **Exhibit 6.4**). One blank sample and one duplicate sample will also be collected for quality control. Arsenic will also be tested in a wells located in the designated "Domestic Water System Groundwater Source of Supply Area.". Proper well development will be performed for accurate testing results, and sampling will be executed as outlined in the sampling protocols in the TID GMP (Attachment 3, Appendix C of **Exhibit 3.2**). Water levels will also be recorded when water quality samples are retrieved. All sampling will be conducted by appropriate professionals, with appropriate preservatives, under proper chain of custody procedures, and transported to the lab within the proper holding times. The results will be summarized and reviewed by a water quality specialist. The results will also be compared to other water quality test results in the area, state drinking water standards, and recommended values for irrigated agriculture.

Task 5 - Project Reporting

Subtask 5.1 - Progress Reports

The District will submit required quarterly progress reports to DWR. These reports will discuss progress to date, data developed, information gained, costs incurred, and problems encountered. Each report will be prepared in accordance with the required DWR format. Progress reports will also be provided to the District Board of Directors.

Subtask 5.2 - Draft Project Report

The draft report will include pertinent data, criteria, maps, narratives, alternatives, recommendations, and conclusions identified in this work plan. The report will also include an

Executive Summary, a comparison between the planned schedule in the Agreement, actual timeline of completed tasks, and an explanation of differences, and discussion of major problems encountered and how they were resolved. This report will also include data collected pursuant to this grant, including the following:

- Location and description of wells included in monitoring program
- Geologic Logs
- Monitoring well record drawings
- Borehole geophysical logs
- Survey information
- Summary of stakeholder participation in this project
- Water level information
- Water quality test results

The draft report will be submitted to DWR for review. The agency review period is anticipated to be up to three months. The Draft Report will also be available in the TID office for review by the public.

Subtask 5.3 - Final Project Report

TID will submit three hard copies and one electronic copy of the final report to DWR. The final report will address comments from DWR on the draft report. The Final Report will also be available in the TID office for public review.

Technical References

The scope of work was prepared using detailed information found in the TID files and the numerous technical references listed in **Exhibit 5.3**. Therefore, there is strong technical justification for the project and the scope of work is based on documented and accepted scientific data.

Consistency with GMP and IRWMP

The scope of work is also compatible with the goals and objectives in the TID Groundwater Management Plan, as discussed in Section 4.5.

The TID is part of the Upper Kings Basin Integrated Regional Water Management Authority, who prepared an Integrated Regional Water Management Plan in 2007 and is currently updating it. The existing IRWMP can be found on the Authority's website (http://www.krcd.org/water/ukbirwma/docs_gov.html). The proposed project is compatible with the IRWMP in many ways. The project is consistent with several goals listed on pages 5-5 to 5-6 of the IRWMP, including:

> " • *Halt, and ultimately reverse, the current overdraft and provide for sustainable management of surface and groundwater;*
> • *Collect and compile water quality baseline data for the region*
> • *Identify and pursue sources of funding needed to support project development."*

In addition, page 6-2 the IRWMP states:

> "*After reviewing the water management strategies, the Water Forum established Conjunctive Use & Groundwater Management as the prevailing theme of the Upper Kings Basin IRWMP*." (pg 6-2)

5.5 – Project Deliverables

The project will have the following deliverables (submittals):

1. **Conceptual Design Memorandum.** This memorandum will document the draft design features and assumptions for review by stakeholders and technical experts.

2. **Monitoring Well Plans and Specifications.** Final construction drawings and specifications will be prepared for the five proposed monitoring wells.

3. **Monitoring Well Bid Documents.** Bidding and legal documents will be prepared for a public bidding process.

4. **Record Drawings.** Record drawings will be prepared documenting the constructed conditions at each of the four monitoring wells.

5. **Hydrogeologic and Stratigraphic Evaluation**. This deliverable will include an evaluation of the hydrogeology and stratigraphy based on the data collected during the project.

6. **Quarterly Progress Reports.** Progress reports will be submitted to the DWR on a quarterly basis. No format was provided in the 2012 Proposal Solicitation Package, but the progress reports will be prepared according to DWR recommendations.

7. **Draft Project Report.** A draft report will be prepared summarizing the work from all the project tasks. Two copies of the report will be submitted to DWR after District review. The DWR review period is assumed to be up to two months.

8. **Final Project Report.** A final report will be submitted that addresses pertinent comments from DWR. Two hard copies and one electronic copy will be submitted to DWR.

More detail on these deliverables is provided in Section 5.4 – Work Items.

5.6 – Permitting and Environmental Documentation

Permitting and environmental compliance efforts are reflected in the budget and schedule. TID has experience with permitting wells and is familiar with the required process. No permits will be required other than Fresno County Well Drilling permits and Encroachment permits. Monitoring wells will be located in active Fresno County Road right-of-ways or active farmland owned by TID.

Environmental Impacts

No adverse environmental impacts are anticipated from the project. Constructing monitoring wells has minimal disturbance to small areas. Overall the project will help to support groundwater monitoring and overdraft mitigation efforts, which offer positive benefits to the environment.

CEQA Compliance

It is believed that monitoring well construction is exempt from CEQA. Specific locations for the monitoring wells have been identified and it is believed that their construction will have no adverse environmental impacts. The District will therefore claim a Class 6 'Information Collection' exemption (Section 15306), and a Class 3 'Small New Facilities' exemption (Section 15303). A notice of exemption will be approved by the TID Board of Directors and filed with Fresno County. All other work performed on the project will be scientific and engineering studies and therefore will qualify as a Class 6 'Information Collection' exemption.

NEPA Compliance

The proposed project will not use federal funds or involve federal facilities so the National Environmental Policy Act (NEPA) does not apply.

Permitting Requirements

A Fresno County well drilling permit will be needed for the monitor wells (see **Exhibit 5.1** for a blank permit application). The permit must be filed by a licensed drilling contractor, but the District will ensure that the driller has secured the permit before they begin drilling. Fresno County stated that these permits are processed the same day they are received. An Encroachment Permit is needed from the County to install wells on their property (see **Exhibit 5.2** for an example of a recently approved encroachment permit for similar wells in neighboring James Irrigation District). The well driller will be responsible for securing these permits, but Tranquillity ID will facilitate the effort. In the past these permits were secured within one week. No other permits are expected to be necessary for the project.

5.7 – Strategy for Evaluating Progress and Performance

TID has developed a detailed process for project monitoring and evaluation. This process is reflected in the work plan, budget and schedule.

General Project Monitoring

Project monitoring will be performed through the following:

1. Updates on the project status at monthly District Board meetings
2. Quarterly progress reports submitted to DWR
3. The Draft Project Report will be available in the District office for public review and comments

These monitoring efforts will provide opportunities for the public, Board of Directors, District staff, neighboring agencies, and DWR to comment on the project. Involving these parties will ensure that the work is proceeding in the appropriate direction and ultimately provides a product that is needed and understood. Lastly, the numerous QA/QC measures outlined in **Section 8: Quality Assurance**, will also help to ensure that the project is properly monitored and reviewed.

Management of Schedule and Budget

The budget and schedule will be reviewed weekly to measure progress versus expenditures and the schedule. If expenditures are higher than anticipated, or progress is behind schedule, then the TID manager and engineering consultant will meet within a week to resolve any problems. DWR will be notified as soon as possible if there are budgetary or scheduling concerns. The schedule and budget, however, include some contingency so schedule or budget problems are considered unlikely. If schedule problems do arise then more people will be assigned to the project.

The schedule (**Exhibit 7.1**) contains several important milestones, including:

- Conceptual Design Memorandum
- Completion of Plans and Specifications
- Commencement of Monitoring Well Construction
- Completion of Monitoring Well Construction
- Completion of Hydrogeologic/Stratigraphic Evaluation
- Draft Project Report
- Final Project Report

These milestones will help to gauge project success in terms of schedule, knowledge gained, and facilities constructed.

Project Performance by Task

Project performance will be measured as described below for each of the project tasks:

Task 1 - Public Outreach. Public outreach efforts will be evaluated based on the number of people that are reached, and comments that are received. Useful comments will be incorporated into the design of the monitoring network and will help to improve groundwater management.

Task 2 - Monitoring Well Design. Performance will be evaluated through design reviews during different stages in the design. These design reviews will be performed internally by the engineering consultant, an independent third party expert, District staff, the Board of Directors, and DWR staff if required. This will help to ensure that the designs are suitable and compatible with the local conditions, and meet the needs of the District. Construction will not proceed until the final design is acceptable to the stakeholders.

Task 3 - Monitoring Well Construction. Oversight during monitoring well construction will include periodic visits by the engineering consultant and regular visits by District staff. If necessary, design modifications will be made to suit site-specific characteristics, and provide a more useful monitoring well. Design modifications will only be made after consultation with the District Manager, engineering consultant, and drilling contractor.

Task 4 - Post Construction Activities. Post construction activities will include soil logging, geophysical logging, and groundwater quality testing. All of this information will be reviewed by technical specialists as well as TID staff. Comments from reviewers will help ensure that the data is presented in an organized and appropriate format, and is usable by District staff. All the collected information will be compared to existing geologic and water quality data in the area for consistency.

Task 5 - Project Reporting. Project reports will be reviewed by the engineering consultant, District staff, and Board of Directors. This will help to ensure that the reports are well organized, contain relevant information, and contain an appropriate level of detail.

5.8 – Property Access

Three monitoring wells (MW-1, MW-2 & MW-5 as shown in **Exhibit 4.1**) will be constructed on property owned in fee by Tranquillity Irrigation District. The other two wells (MW-3 & MW-4 as shown in **Exhibit 4.1**) will be sited in the shoulders of Fresno County road right-of-ways. In the experience of the District's consulting engineer, the County rarely denies permission to install non-producing wells (i.e. monitoring wells) in their road right-of-ways, as long as all their guidelines are met. An Encroachment Permit is needed from the County to install wells on their property. The well driller will be responsible for securing these permits, but TID will facilitate the effort. In the past these permits were acquired within one week. As recently as 2009, similar monitoring wells were installed in the neighboring James Irrigation District in the Fresno

County road right-of-way. A copy of the Fresno County approval for said well installation in James ID is included as **Exhibit 5.2**, to show that Fresno County has been approving these installations. Fresno County Assessor's maps showing the proposed location of the five monitoring wells are included as **Exhibit 5.4**, showing the TID fee title land and the county road right-of-way locations.

5.9 - Information Dissemination

TID has a well developed process for public outreach and information dissemination. These efforts are intended to reach local water users, the general public, and other public agencies. The goals of the information dissemination efforts include:

1. Educate the public on the goals and benefits of the project
2. Keep the public informed on project progress
3. Gauge public support for the project
4. Collect and discuss comments and suggestions

Public outreach efforts that will be used for this project are shown in **Figure 5.1** and are described below. These public outreach efforts are reflected in the work plan, budget and schedule.

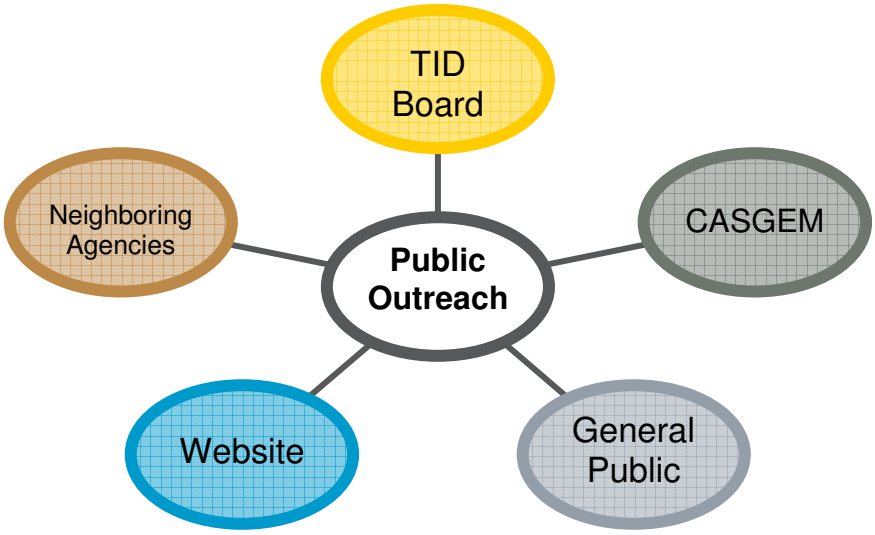

Figure 5.1 – Information Dissemination

Tranquillity Irrigation District Board Meetings

The District holds monthly board meetings that are publicly advertised and open to the public. At the beginning of each meeting there is a public comment period where anyone can voice their opinion or concern on any issue. During the course of the proposed project, regular presentations will be made at the monthly Board meetings on the project status and any

important project issues. Up to two special meetings will be held with PowerPoint presentations or other visuals. These special meetings will likely be at the beginning and end of the project.

California State Groundwater Elevation Monitoring (CASGEM) Program

TID is working with Kings River Conservation District (KRCD) to include two of their existing wells (MW-TW#2 & MW-TW#3) through the CASGEM program. KRCD is in the process of opening a new notification to include wells in the TID area. These new wells will be available to be added to the CASGEM database so that monitoring data is available to the State and general public.

General Public

The TID office is open to the public every work day and during lunch for the public's convenience. Growers and water users frequently visit the office. Growers are always welcome to talk to the District Manager or operations staff about issues and concerns. Copies of reports such as the Groundwater Management Plan are also available in the office for the public's review. Documentation on the proposed project will also be available in the office for their review including the Grant Application, Draft Project Report, Final Project Report, and future groundwater monitoring data. A flyer describing the project and grant award will be posted on the TID office bulletin board.

TID Website

TID maintains a website to keep growers informed of current events and TID projects. TID will post an educational flyer, the draft project report and the final project report on the website.

Contact Neighboring Agencies

TID will directly contact neighboring agencies that may be interested in the project, including James Irrigation District and Fresno Slough Water District. These districts already collaborate with TID on groundwater projects and may be interested in the proposed improvements to the monitoring network.

EXHIBIT 5.1

DEPARTMENT OF PUBLIC HEALTH, ENVIRONMENTAL HEALTH DIVISION

P.O. Box 11867, Fresno, California 93775-1867 Tel: (559) 445-3357 FAX: (559) 445-3301
Website: www.fcdph.org

PERMIT TO CONSTRUCT, DEEPEN, DESTROY, RECONDITION, OR REPAIR A WELL

Note: This permit is non-transferable and is valid for 180 days

PERMIT NUMBER:_____

Application Date _____ Estimated Starting Date _____

T: _____ R: _____ S: _____

APN: _____ / _____ / _____

OFFICE USE ONLY

Specialist: _____ CT: _____ FA#: _____ WP#: _____

☐ Well Location In Designated Flood Zone. Extend casing above known flood level.

Depth To Corcoran Clay (special annular seal requirements apply)_____

Job Address / Location: _____ Parcel Size: _____

Owner Name: _____ Owner Phone: _____

Owner Address: _____ City: _____ State: _____ Zip: _____

Contractor Name: _____ License #: _____ Phone: _____

TYPE OF WORK ☐ New Well ☐ Replacement Well ☐ Reconstruction/Deepening ☐ Test Hole Only ☐ Destruction

INTENDED USE ☐ Domestic Private ☐ Agricultural ☐ Industrial ☐ Cathodic ☐ Monitoring
☐ Domestic Public System Name: ☐ Other

WELL CONSTRUCTION ☐ Casing Driven ☐ Cable Tool ☐ Hardrock ☐ Auger ☐ Direct Rotary ☐ Reverse Rotary

Conductor Casing Material: _____ Diameter: _____ In Depth: _____ Ft Borehole Diameter: _____ In

Well Casing Material: _____ Diameter: _____ In Gauge: _____ Borehole Diameter: _____ In

Annular Seal Depth: _____ Ft ☐ Neat Cement ☐ Sand Cement ☐ Concrete

☐ Bentonite - Manufacturer and Product Name _____ ☐ Mixed With Water ☐ Dry Application

Seal Placement Method ☐ Pumped ☐ Free Fall (allowed only when the interval to be sealed is dry and less than 30 feet in depth)

WELL DESTRUCTION ☐ Open Bottom ☐ Gravel Packed ☐ Uncased ☐ Other _____

Diameter _____ In Total Depth _____ Ft Depth To Water _____ Ft ☐ Casing To Be Perforated _____ Ft To _____ Ft

Destruction Seal ☐ Neat Cement ☐ Sand Cement ☐ Concrete Fill Material Below Seal _____

☐ Bentonite - Manufacturer and Product Name _____ ☐ Mixed With Water ☐ Dry Application

☐ Seal Interval _____ Feet Below Grade To Top Of Casing ☐ Seal Bottom Of Well To Top Of Casing

☐ Casing Cut Off _____ Feet Below Grade (6 feet maximum allowed)

Seal Placement Method ☐ Pumped ☐ Free Fall (allowed only when the interval to be sealed is dry and less than 30 feet in depth)

☐ Oil-lubricated pump. Any oil in the well will be removed and properly disposed of prior to destruction.

SETBACKS (in feet) ☐ All Setbacks Exceed 300 Feet Other Wells _____ Leach Lines _____ Septic Tank _____

Cesspool _____ Seepage Pits _____ Sewer Lines _____ Designated Sewage Replacement Area _____

Animal/Fowl Enclosure _____ Flood Control Basins _____ Waste Water Disposal Ponds _____ Lakes, Streams _____

SPECIAL SUBDIVISION, TRACT RESTRICTIONS Tract Name, Number _____

☐ Setbacks (specify type, e.g. well-to-well, etc. and required distance) _____

☐ Designated Engineered Sewage Disposal Areas (enclose tract map showing designated areas on each parcel)

FEE ☐ $605 (Domestic, Agricultural, Cathodic, Industrial) ☐ $407 (Well Destruction) ☐ No Charge (Monitoring Wells)

PAYMENT METHOD ☐ Cash ☐ Check ☐ Credit Card*

*Authorization on file with Fresno County Department of Public Health, Environmental Health Division

I hereby certify that the information described herein is correct. I understand that all work is to be done in accordance with the California Well Standards Ordinance and the conditions of this permit application, including any conditions which are added by the Environmental Health Division upon review of this application and issuance of the permit. I certify that I have a current C-57 Contractor's License and, if I employ workers, a current certificate of Workers' Compensation Insurance. I further understand that any permit issued pursuant to this application is subject to such further conditions as may be deemed necessary to ensure compliance with the Ordinance.

CONTRACTOR SIGNATURE: DATE:

OFFICE USE ONLY

Approved: ____ Date: _____ Final Inspection: ____ Date: _____

Complete: ____ Date: _____ Incomplete: ____ Date: _____

Supervisor: ____

Envision Clerical Use

Account # _____ PE _____

Entered By _____ Date _____

Revision 12/10/08

DEPARTMENT OF PUBLIC HEALTH, ENVIRONMENTAL HEALTH DIVISION

P.O. Box 11867, Fresno, California 93775-1867 Tel: (559) 445-3357 FAX: (559) 445-3301

Website: www.fcdph.org

PLOT PLAN TO ACCOMPANY PERMIT TO CONSTRUCT, DEEPEN, DESTROY, RECONDITION, OR REPAIR A WELL

Note: This permit is non-transferable and is valid for 180 days

Job Address / Location: ______________________________ APN: ____/____/____ PERMIT # __________

Indicate distances in feet. Provide the names of streets or roads nearest to the property. Provide dimensions of the property and all existing or proposed structures. Provide locations of existing or proposed sewage disposal systems, including expansion or repair areas, within 250 feet of the new well. Provide locations of all other wells within 300 feet of the new well. Location information shall include all adjacent parcels, if within setbacks.

↑
N

Department of Public Works and Planning
Maintenance & Operations Division
2220 Tulare Street, Sixth Floor
Fresno, California 93721

COUNTY OF FRESNO
APPLICATION FOR ROAD ENCROACHMENT

Permit No 20648
For Inspection Service
Telephone (559) 262-4107
Facsimile (559) 262-4166

In compliance with County of Fresno Ordinance Nos. 13.04.040, 13.08.010, 13.08.020 and Chapter 5.5 of Division 2 of the Streets and Highways Code, the undersigned hereby applies for permission to excavate, construct and/or otherwise encroach on the County right-of-way by performing the following work.

LOCATION OF PROPOSED WORK:
ATTACHED LIST PART OF PERMIT

DESCRIPTION OF PROPOSED WORK:
Excavate within the dirt shoulder approximately 10 feet from the existing edge of pavement at the locations listed on the attached sheet for the installation of ground water monitoring wells.
(Local Groundwater Assistance Fund Observation Well Construction).
James Irrigation District.

County of Fresno
Department of Public Works && Planning
Address: 2220 Tulare Street, 6th Floor Fresno,
REG-RECEIPT:797 - 7849
CASHIER ID : KDH1234 Apr 07 2010
Date Printed: 4/7/2010 11:17:21

Road Account 44	$500.00
SubTotal	$500.00
PST	
GST	
TOTAL DUE	
RECEIVED FROM :	
BRADLEY & SONS, INC	
CCARD	$500.00
TOTAL TENDERED	$500.00
CHANGE DUE	$0.00

PERMIT QUANTITIES & INSPECTON FEES

A.	_____	L.F. Plowed Cable, pipe,	
B.	_____	L.F. Trenches (off	
C.	_____	L.F. Trenches (in pavement)	
D.	4	Monitoring Wells	$500.00

04/07/10
Estimated Starting Date

04/23/10
Estimated Completion Date

Applicant's Name: Bradley & Sons, Inc.

Address: 3625 S. Highland Avenue

City: Del Rey State: California Zip: 93616

Sign: (X) Date:

Home Phone: () - Work Phone: (559) 441-1401 x0

In consideration of the granting of this application, it is agreed that the applicant shall indemnify the County of Fresno and any and all of its officers, employees and agents and shall defend and hold them harmless from any and all claim or liability for personal injury or property damage due to any acts or failure to act in connection with any work permitted herein. Applicant further agrees to comply with all terms, conditions and specifications contained below and on the reverse side hereof.

PERMIT APPROVAL

Permission is hereby granted to perform the above described work subject to all terms, conditions and restrictions contained below and on the reverse side hereof. This permit is to be strictly construed and no work other than that specified is authorized hereby. This permit is expressly conditioned upon performance of the work. Failure to so perform said work in accordance with County specifications shall be deemed an immediate revocation of this permit and without notice.
Work shall be subject to County inspection. Permittee shall notify County Inspector Frank Garcia a minimum of 24 hours before starting work (Telephone 559/262-4107).
THIS PERMIT SHALL BE VOID UNLESS THE WORK HEREIN CONTEMPLATED SHALL HAVE BEEN COMPLETED BEFORE 04/23/10

To commence or complete work after said date requires approved application for permit renewal or time extension. Grantor reserves the right to complete the work to restore the right-of-way as provided in Section 10 on the reverse side hereof.

"ATTACHED ADDENDUM IS PART OF THIS PERMIT"

Account No.
0/49 Work Code
Work Code 9 500
Mtce Area 02
Permit Fee $500.00

Alan Weaver, Director
Department of Public Works and Planning
By _____
Darren Findley, Permit Engineer
Date 04/07/10

P-83 (04/02)

FOR OFFICE USE ONLY

WHITE - Office Copy GREEN - Inspector Copy CANARY - Permittee Copy PINK - Accounting Copy GOLDENROD - Area Supervisor Copy

Permit No 20648

LOCATIONS :

1.	Colorado Avenue -	Approximately 180 feet S/O Floral Avenue DW-1
2.	Yuba Avenue -	Approximately 210 feet S/O Springfield Avenue DW-2
3.	Manning Avenue -	Approximately 200 feet E/O Contra Costa Avenue SW-2
4.	Napa Avenue -	Approximately 1/2 mile S/O Manning Avenue SW-4

EXHIBIT 5.3

Tranquillity Irrigation District
Technical References used in Preparation of Local Groundwater Assistance Grant Application

1. California Department of Water Resources, *Bulletin No. 74-81 – Water Well Standards: State of California*, 1981.

2. California Department of Water Resources, *California's Ground Water, Bulletin 118 (Update 2003),* 2003.

3. California Department of Water Resources, *San Joaquin Valley Subsidence Monitoring Program – Draft*, June 1996.

4. Geoconsultants, Inc., *Summary Report – Magnetotelluric Profile Demonstration Survey – Tranquillity Irrigation District*, 1994.Interstate 5 Business Development Corridor, *Water Resources Assessment Plan for the Interstate 5 Business Development Corridor, Inc.*, April 1998.

5. Kings River Conservation District, *2003 Groundwater Report, Kings River Conservation District*, 2004.

6. Provost & Pritchard Consulting Group, *Tranquillity Irrigation District Groundwater Management Plan*, 2009.

7. RB Smith Consulting, *Water Management Plan for Tranquillity Irrigation District*, March 2005.

8. San Luis & Delta-Mendota Water Authority, *2005 Westside Integrated Water Resources Plan*, 2006.

9. Sokol, Dan, United States Bureau of Reclamation, *Tranquillity Irrigation District, Geology, Chapter III*, February 1955.

10. Tranquillity Irrigation District, *Consumer Confidence Reports*, 2000-2007.

11. Tranquillity Irrigation District, Rules *and Regulations of Tranquillity Irrigation District*, 1993.

12. Twining Laboratories, Inc., *Monitor Well Inventory and Sampling – Tranquillity Irrigation District*, January 1999.

13. United States Geologic Survey, *Data for Wells in the Dos Palos – Kettleman City Area, San Joaquin Valley, California*, 1970.

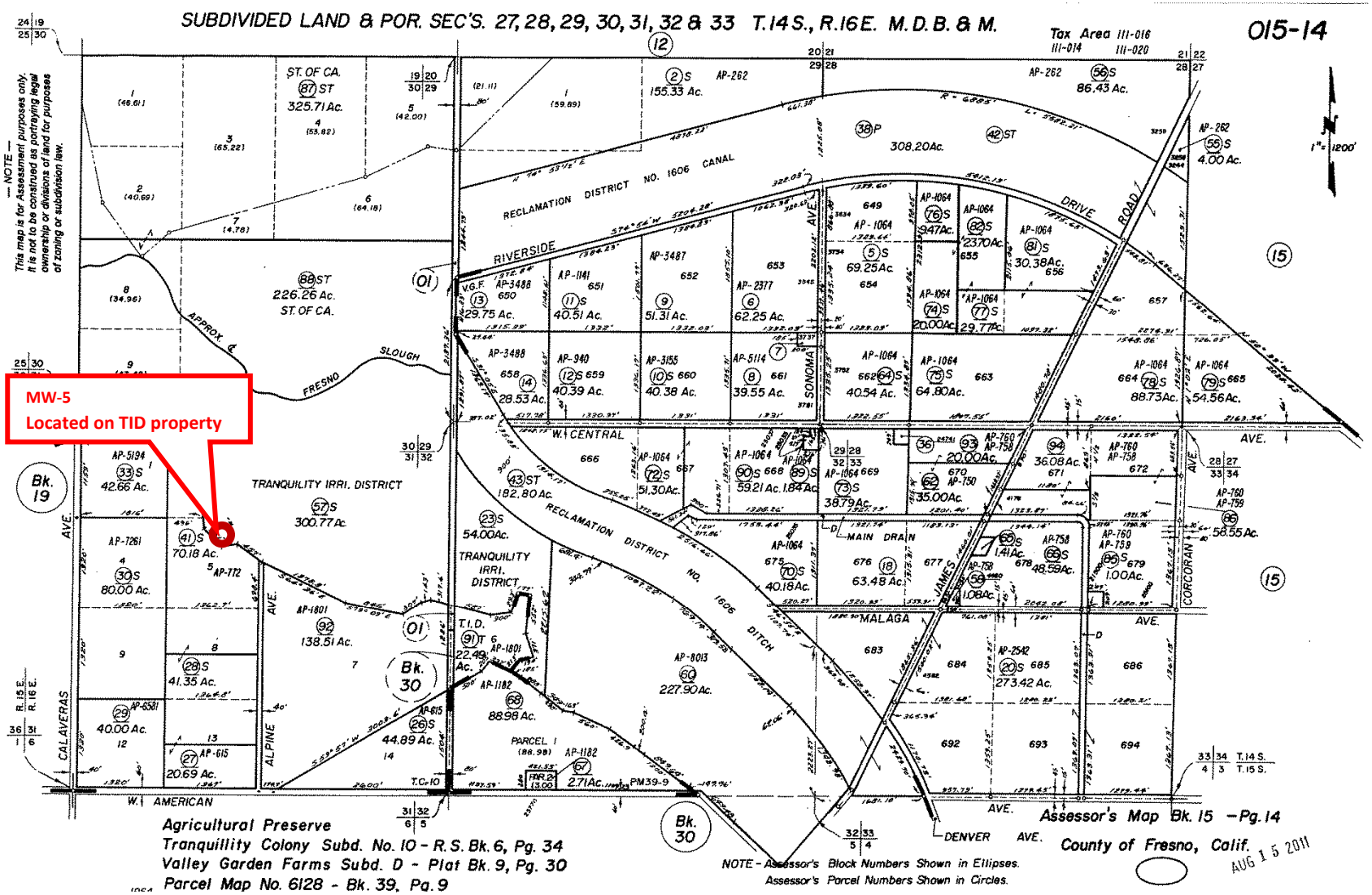
SUBDIVIDED LAND & POR. SEC'S. 27, 28, 29, 30, 31, 32 & 33 T.14S., R.16E. M.D.B. & M.
015-14
Tax Area 111-016
111-014 111-020
MW-5
Located on TID property
RECLAMATION DISTRICT NO. 1606 CANAL
RIVERSIDE DRIVE
ROAD 1
W. CENTRAL AVE.
W. AMERICAN AVE.
MALAGA AVE.
DENVER AVE.
SONOMA
JAMES
CORCORAN
ALPINE
CALAVERAS
FRESNO SLOUGH
APPROX. ℄
TRANQUILITY IRRI. DISTRICT
TRANQUILITY IRRI. DISTRICT
RECLAMATION DISTRICT NO. 1606 DITCH
MAIN DRAIN
T.I.D.
PARCEL 1
ST. OF CA.
Bk. 19
Bk. 30
Bk. 30
Agricultural Preserve
Tranquillity Colony Subd. No. 10 - R.S. Bk. 6, Pg. 34
Valley Garden Farms Subd. D - Plat Bk. 9, Pg. 30
Parcel Map No. 6128 - Bk. 39, Pg. 9
NOTE - Assessor's Block Numbers Shown in Ellipses.
Assessor's Parcel Numbers Shown in Circles.
Assessor's Map Bk. 15 - Pg. 14
County of Fresno, Calif.
AUG 15 2011
1" = 1200'
— NOTE —
This map is for Assessment purposes only. It is not to be construed as portraying legal ownership or divisions of land for purposes of zoning or subdivision law.

EXHIBIT 5.4

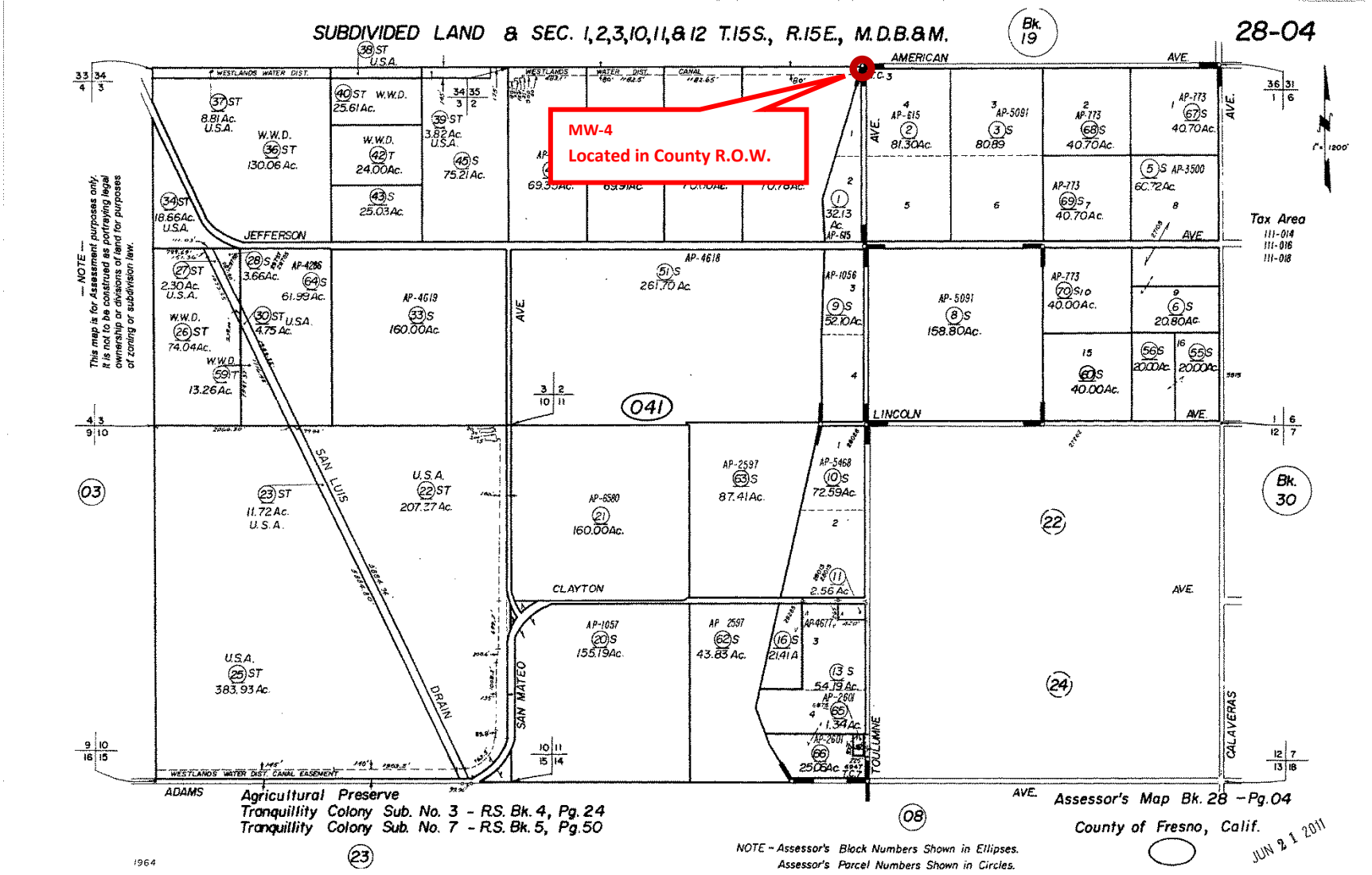
SUBDIVIDED LAND & SEC. 1,2,3,10,11,& 12 T.15S., R.15E., M.D.B.&M.
28-04
Bk. 19
MW-4
Located in County R.O.W.
AMERICAN AVE.
JEFFERSON
LINCOLN
CLAYTON
ADAMS
SAN LUIS DRAIN
SAN MATEO AVE.
TOULUMNE AVE.
CALAVERAS AVE.
WESTLANDS WATER DIST.
WESTLANDS WATER DIST. CANAL EASEMENT
Tax Area
111-014
111-016
111-018
— NOTE — This map is for Assessment purposes only. It is not to be construed as portraying legal ownership or divisions of land for purposes of zoning or subdivision law.
041
03
22
24
08
23
Bk. 30
Agricultural Preserve
Tranquillity Colony Sub. No. 3 - R.S. Bk. 4, Pg. 24
Tranquillity Colony Sub. No. 7 - R.S. Bk. 5, Pg.50
1964
NOTE - Assessor's Block Numbers Shown in Ellipses.
Assessor's Parcel Numbers Shown in Circles.
Assessor's Map Bk. 28 - Pg.04
County of Fresno, Calif.
JUN 21 2011

EXHIBIT 5.4

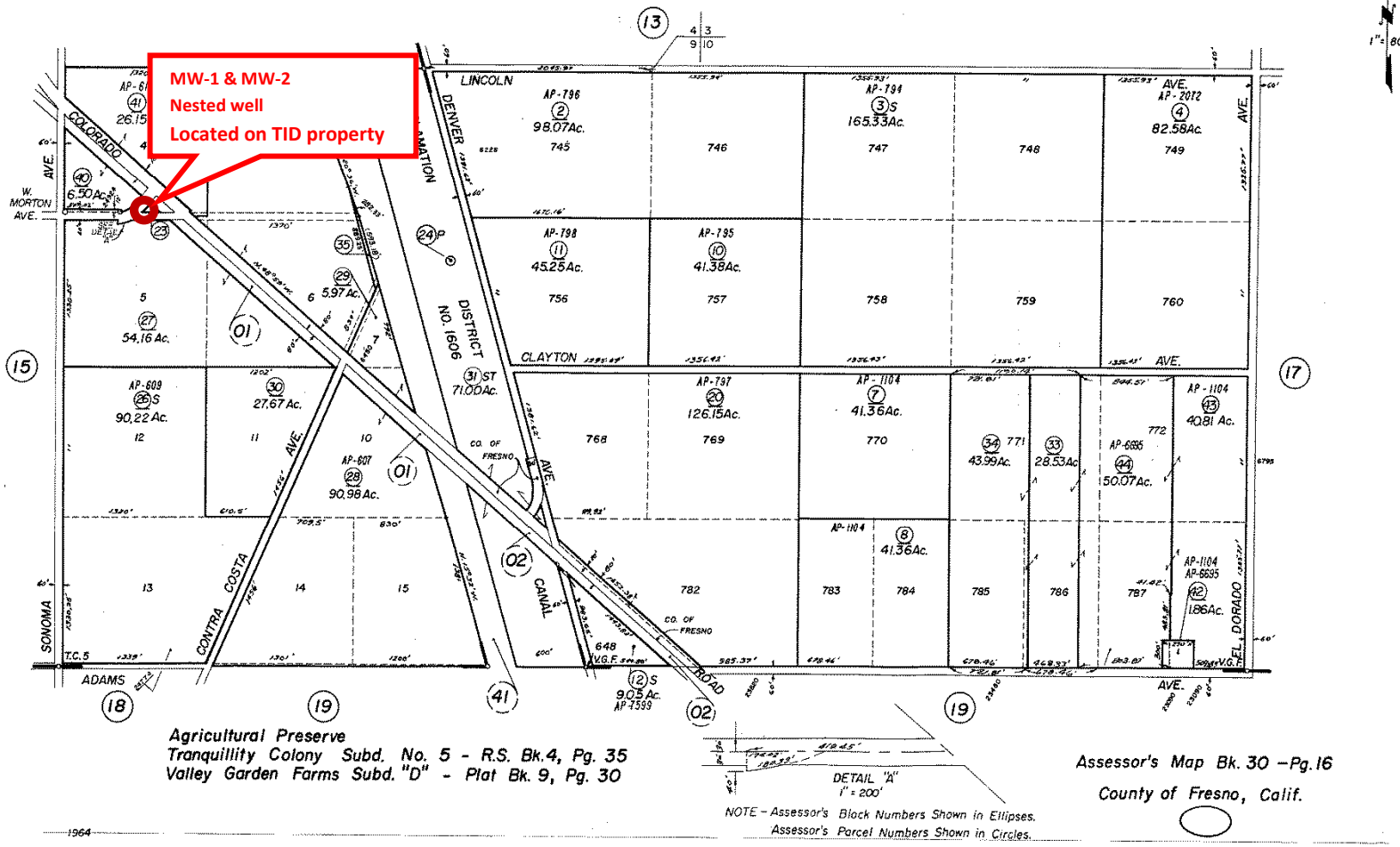
SUBDIVIDED LAND & POR. SEC. 9 & 10, T.15S., R.16E., M.D.B.&M.
30-16
Tax Area
191-002
191-006
1" = 800'
MW-1 & MW-2
Nested well
Located on TID property
LINCOLN AVE.
CLAYTON AVE.
ADAMS AVE.
W. MORTON AVE.
COLORADO AVE.
DENVER AVE.
EL DORADO AVE.
SONOMA AVE.
CONTRA COSTA CANAL
DISTRICT NO. 1606
CO. OF FRESNO
AP-796 (2) 98.07Ac.
AP-796 (3)S 165.33Ac.
AP-2012 (4) 82.58Ac.
AP-798 (11) 45.25Ac.
AP-795 (10) 41.38Ac.
AP-797 (20) 126.15Ac.
AP-1104 (7) 41.36Ac.
AP-1104 (8) 41.36Ac.
AP-1104 (43) 40.81 Ac.
AP-6695 (44) 50.07Ac.
AP-1104 AP-6695 (42) 1.86Ac.
AP-609 (26)S 90.22 Ac.
AP-607 (28) 90.98 Ac.
(27) 54.16 Ac.
(30) 27.67 Ac.
(29) 5.97 Ac.
(31)ST 71.00Ac.
(34) 43.99Ac.
(33) 28.53Ac.
(12)S 9.05Ac. AP-7599
(40) 6.50 Ac.
(41) 26.15
Agricultural Preserve
Tranquillity Colony Subd. No. 5 - R.S. Bk.4, Pg. 35
Valley Garden Farms Subd. "D" - Plat Bk. 9, Pg. 30
DETAIL "A" 1" = 200'
NOTE - Assessor's Block Numbers Shown in Ellipses.
Assessor's Parcel Numbers Shown in Circles.
Assessor's Map Bk. 30 - Pg. 16
County of Fresno, Calif.
1964

EXHIBIT 5.4

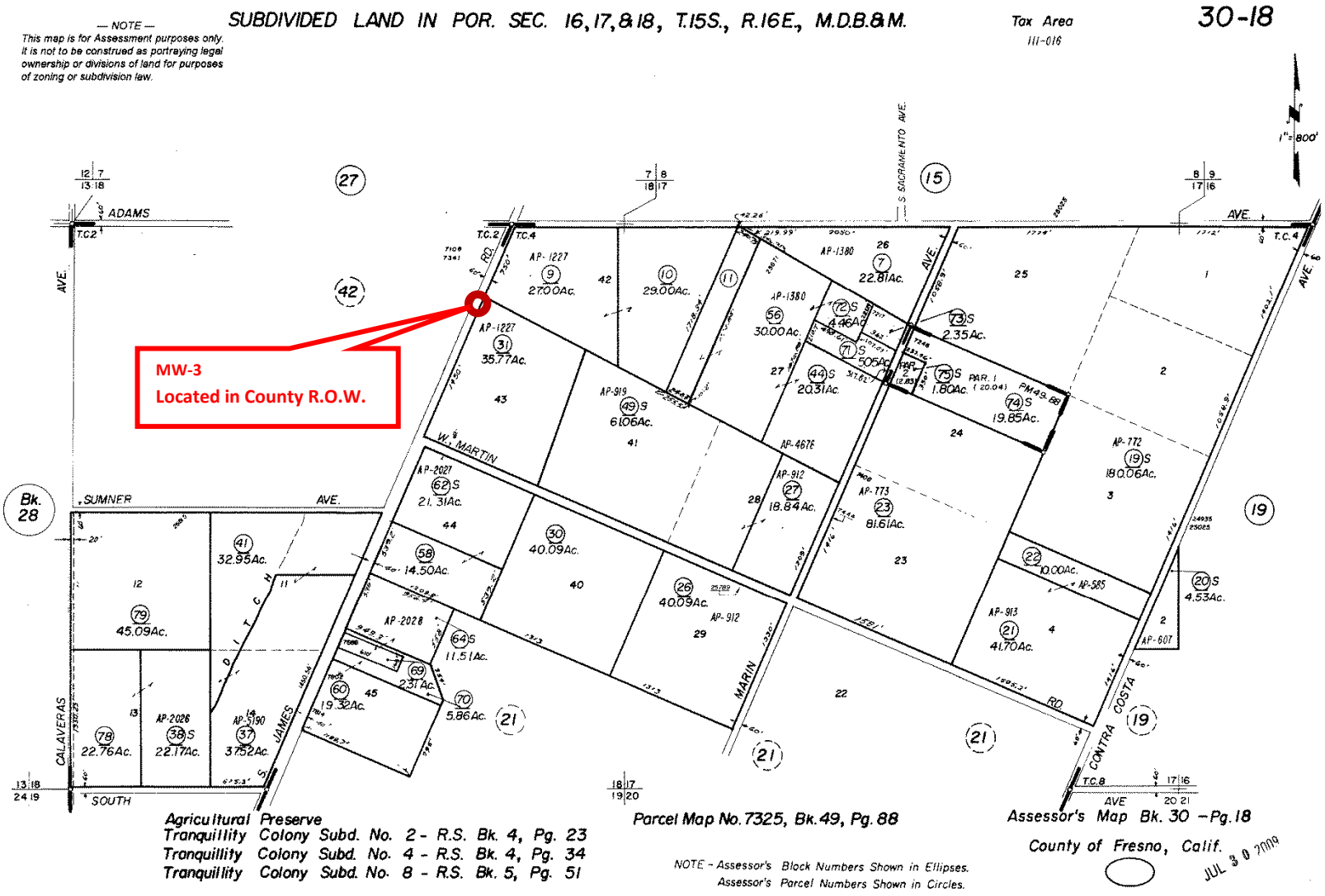
— NOTE —
This map is for Assessment purposes only. It is not to be construed as portraying legal ownership or divisions of land for purposes of zoning or subdivision law.
SUBDIVIDED LAND IN POR. SEC. 16, 17, & 18, T.15S., R.16E., M.D.B.&M.
Tax Area
111-016
30-18
1" = 800'
MW-3
Located in County R.O.W.
ADAMS AVE.
SUMNER AVE.
W. MARTIN AVE.
S. SACRAMENTO AVE.
CALAVERAS
JAMES
MARIN
CONTRA COSTA
SOUTH
Bk. 28
Agricultural Preserve
Tranquillity Colony Subd. No. 2 - R.S. Bk. 4, Pg. 23
Tranquillity Colony Subd. No. 4 - R.S. Bk. 4, Pg. 34
Tranquillity Colony Subd. No. 8 - R.S. Bk. 5, Pg. 51
Parcel Map No. 7325, Bk. 49, Pg. 88
NOTE - Assessor's Block Numbers Shown in Ellipses.
Assessor's Parcel Numbers Shown in Circles.
Assessor's Map Bk. 30 - Pg. 18
County of Fresno, Calif.
JUL 30 2009

EXHIBIT 5.4